

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A method for operating a multi-type an air conditioner having an outdoor unit, a distributor, and a plurality of indoor units, the method comprising the steps of:

calculating a total heating load of the indoor units that are to carry out heating, and a total cooling load of the indoor units that are to carry out cooling; and

determining an operation pattern of the outdoor unit according to the total cooling load and the total heating load

operating the indoor units according to an operation pattern of the outdoor unit determined by comparing the total cooling load and the total heating load;

recalculating the total heating load and the total cooling load of the indoor units when an operation temperature of the indoor units is changed; and

further operating the indoor units according to a changed operation pattern of the outdoor unit associated with the recalculating of the total heating load and the total cooling load of the indoor units,

wherein the recalculated total cooling load is calculated by adding the total cooling load of the indoor units before the change of the operation temperature and an additional cooling load required following the change of the operation temperature, and

wherein the recalculated total heating load is calculated by adding the total heating load of the indoor units before the change of the operation temperature and an additional heating load required following the change of the operation temperature.

2. (Currently Amended) The method as claimed recited in claim 1, wherein the total cooling load of the indoor units is  $Qc1x(Tcr1-Tcs1) + Qc2x(Tcr2-Tcs2) + Qc3x(Tcr3-Tcs3) + \dots$ , where  $Qc1$ ,  $Qc2$ ,  $Qc3$ ,  $\dots$  denote capacities of the indoor unit units that are to carry out cooling,  $Tcs1$ ,  $Tcs2$ ,  $Tcs3$ ,  $\dots$  denote operation temperatures of the indoor units, and  $Tcr1$ ,  $Tcr2$ ,  $Tcr3$ ,  $\dots$  denote room temperatures of respective rooms, and

the total heating load of the indoor units is  $Qh1x(Ths1-Thr1) + Qh2x(Ths2-Thr2) + Qh3x(Ths3-Thr3) + \dots$ , where  $Qh1$ ,  $Qh2$ ,  $Qh3$ ,  $\dots$  denote capacities of the indoor unit units that are to carry out heating,  $Ths1$ ,  $Ths2$ ,  $Ths3$ ,  $\dots$  denote operation temperatures of the indoor units, and  $Thr1$ ,  $Thr2$ ,  $Thr3$ ,  $\dots$  denote room temperatures of respective rooms.

3. (Currently Amended) The method as claimed recited in claim 1, wherein the step of determining an operation pattern of the outdoor unit includes the steps of; is determined such that comparing the total heating load and the total cooling load of the indoor units; and the outdoor unit carrying carries out heating if when the total heating load is greater than the total cooling load, and the outdoor unit carrying carries out cooling if when the total heating load is smaller than the total cooling load.

4. (Currently Amended) The method as claimed recited in claim 3, wherein the step of determining determination of an operation pattern of the outdoor unit further includes the steps of; comparing the an outdoor temperature to a preset reference temperature if when the total heating load is equal to the total cooling load, and the outdoor unit carrying out cooling if when the outdoor temperature exceeds the reference

temperature, and the outdoor unit carrying out heating if when the outdoor temperature is below the reference temperature.

5. (Currently Amended) The method as claimed recited in claim 4, wherein the reference temperature is 15°C.

6. (Canceled)

7. (Currently Amended) The method as claimed recited in claim [[6]] 1, wherein the recalculated total cooling load of the indoor units is  $Qc1x(Tcr1-Tcm1) + Qc2x(Tcr2-Tcm2) + Qc3x(Tcr3-Tcm3) + \dots$ , where  $Qc1, Qc2, Qc3, \dots$  denote capacities of the indoor units that ~~are to~~ carry out cooling,  $Tcm1, Tcm2, Tcm3, \dots$  denote changed operation temperatures of the indoor units, and  $Tcr1, Tcr2, Tcr3, \dots$  denote room temperatures of respective rooms, and

the recalculated total heating load of the indoor units is  $Qh1x(Thm1-Thr1) + Qh2x(Thm2-Thr2) + Qh3x(Thm3-Thr3) + \dots$ , where  $Qh1, Qh2, Qh3, \dots$  denote capacities of the indoor units that ~~are to~~ carry out heating,  $Thm1, Thm2, Thm3, \dots$  denote changed operation temperatures of the indoor units, and  $Thr1, Thr2, Thr3, \dots$  denote room temperatures of respective rooms.

8. (Currently Amended) The method as claimed recited in claim [[6]] 1, wherein ~~the step of changing an~~ the changed operation pattern of the outdoor unit ~~includes the steps of:~~ is determined by comparing the recalculated total cooling load and the recalculated total heating load, and the outdoor unit carrying carries out heating if when the total heating load is greater than the total cooling load, and wherein the outdoor unit carrying carries out cooling if when the total heating load is smaller than the total cooling load.

9. (Currently Amended) The method as claimed recited in claim 8, wherein the ~~step of changing an~~ changed operation pattern of the outdoor unit ~~is further includes the steps of;~~ determined by comparing ~~the~~ an outdoor temperature to a preset reference temperature if when the total heating load is equal to the total cooling load, and the outdoor unit carrying out cooling if when the outdoor temperature exceeds the reference temperature, and the outdoor unit carrying out heating if when the outdoor temperature is below the reference temperature.

10. (Currently Amended) The method as claimed recited in claim 9, wherein the reference temperature is 15°C.

11. (Canceled)

12. (Currently Amended) The method as claimed recited in claim [[11]] 1, wherein the ~~step of recalculating of~~ the total heating load ~~or~~ and the total cooling load of the indoor units includes the ~~steps of;~~ determining the operation pattern of the outdoor unit, and only recalculating the total cooling load of the indoor units if when the operation pattern of the outdoor unit is cooling, and only recalculating the total heating load of the indoor units if when the operation pattern of the outdoor unit is heating.

13. (Currently Amended) The method as claimed recited in claim 12, wherein the recalculated total cooling load of the indoor units is  $Qc1x(Tcr1-Tcm1) + Qc2x(Tcr2-Tcm2) + Qc3x(Tcr3-Tcm3) + \dots$ , where  $Qc1$ ,  $Qc2$ ,  $Qc3$ ,  $\dots$  denote capacities of the indoor units that ~~are to~~ carry out cooling,  $Tcm1$ ,  $Tcm2$ ,  $Tcm3$ ,  $\dots$  denote changed operation temperatures of the indoor units, and  $Tcr1$ ,  $Tcr2$ ,  $Tcr3$ ,  $\dots$  denote room temperatures of respective rooms, and

the recalculated total heating load of the indoor units is  $Q_{h1}x(Thm1-Thr1) + Q_{h2}x(Thm2-Thr2) + Q_{h3}x(Thm3-Thr3) + \dots$ , where  $Q_{h1}$ ,  $Q_{h2}$ ,  $Q_{h3}$ ,  $\dots$  denote capacities of the indoor units that ~~are to~~ carry out heating,  $Thm1$ ,  $Thm2$ ,  $Thm3$ ,  $\dots$  denote changed operation temperatures of the indoor units, and  $Thr1$ ,  $Thr2$ ,  $Thr3$ ,  $\dots$  denote room temperatures of respective rooms.

14. (Currently Amended) The method as claimed recited in claim 12, wherein the ~~step of changing an~~ operation pattern of the outdoor unit ~~includes the steps of;~~ is changed by comparing the recalculated total cooling/heating loads to the total cooling/heating loads before change of the operation temperature, the outdoor unit continuing to carry out cooling if when the recalculated total cooling load is greater than the total heating load before change of the operation temperature, and the outdoor unit carrying out heating if when the recalculated total cooling load is smaller than the total heating load before change of the operation temperature, and the outdoor unit continuing to carry out heating if when the recalculated total heating load is greater than the total cooling load before change of the operation temperature, and the outdoor unit carrying out cooling if when the recalculated total heating load is smaller than the total cooling load before change of the operation temperature.

15. (Currently Amended) The method as claimed recited in claim 14, wherein the ~~step of changing an~~ operation pattern of the outdoor unit ~~further includes the steps of;~~ is further changed by comparing the outdoor temperature to a preset reference temperature if when the recalculated total cooling load is equal to the total heating load of the indoor units before change of the operation temperature, or if when the recalculated total heating load is equal to the total cooling load of the indoor units before

change of the operation temperature, and the outdoor unit carrying out cooling if when the outdoor temperature exceeds the reference temperature, and the outdoor unit carrying out heating if when the outdoor temperature is below the reference temperature.

16. (Original) The method as claimed in claim 15, wherein the reference temperature is 15°C.

17. (Canceled)

18. (Currently Amended) The method as claimed recited in claim [[17]] 1, wherein the additional cooling load of the indoor units is  $Qc1x(Tcs1-Tcm1) + Qc2x(Tcs2-Tcm2) + Qc3x(Tcs3-Tcm3) + \dots$ , where  $Qc1, Qc2, Qc3, \dots$  denote capacities of the indoor unit that ~~are to~~ carry out cooling,  $Tcm1, Tcm2, Tcm3, \dots$  denote operation temperatures of the indoor units that ~~are to~~ carry out cooling after the change of operation temperature, and  $Tcs1, Tcs2, Tcs3, \dots$  denote operation temperatures of the indoor units before the change of operation temperature, and

the additional heating load of the indoor units is  $Qh1x(Thm1-Ths1) + Qh2x(Thm2-Ths2) + Qh3x(Thm3-Ths3) + \dots$ , where  $Qh1, Qh2, Qh3, \dots$  denote capacities of the indoor unit that ~~are to~~ carry out heating,  $Thm1, Thm2, Thm3, \dots$  denote operation temperatures of the indoor units that ~~are to~~ heat the rooms after the change of operation temperature, and  $Ths1, Ths2, Ths3, \dots$  denote room temperatures of respective rooms before the change of operation temperature.

19. (Currently Amended) The method as claimed recited in claim [[17]] 1, wherein the ~~step of changing an~~ operation pattern of the outdoor unit ~~includes the steps of:~~ is changed by comparing the recalculated total cooling/heating loads to the total

cooling/heating loads before the change of the operation temperature, the outdoor unit continuing to carry out cooling if when the recalculated total cooling load is greater than the total heating load before the change of the operation temperature, and the outdoor unit carrying out heating if when the recalculated total cooling load is smaller than the total heating load before the change of the operation temperature, and the outdoor unit continuing to carry out heating if when the recalculated total heating load is greater than the total cooling load before the change of the operation temperature, and the outdoor unit carrying out cooling if when the recalculated total heating load is smaller than the total cooling load before the change of the operation temperature.

20. (Currently Amended) The method as claimed recited in claim 19, wherein the ~~step of changing an operation pattern of the outdoor unit further includes the steps of;~~ comparing the outdoor temperature to a preset reference temperature if when the recalculated total cooling load is equal to the total heating load of the indoor units before change of the operation temperature, or if when the recalculated total heating load is equal to the total cooling load of the indoor units before change of the operation temperature, and the outdoor unit carrying out cooling if when the outdoor temperature exceeds the reference temperature, and the outdoor unit carrying out heating if when the outdoor temperature is below the reference temperature.